

TORNADO-31

Floating Point TMS320C31 DSP System and
TMS320 Emulator for ISA-bus Host Computers

features

- 60 MFLOPS 32-bit TMS320C31 DSP
- up to 1Mx32 0ws static RAM (SRAM)
- on-board shared bus (SB) architecture with shared SRAM/PIOX resources and DSP and host ISA bus memory I/F SB masters
- SB access from host via ISA bus memory page
- flexible modular design with daughter-card modules

I/O expansion

- parallel I/O expansion (PIOX/PIOX-16) I/F connector
- two serial I/O expansion (SIOX) I/F connectors
- a variety of AD/DA and digital I/O daughter modules
- PIOX-coprocessors *TORNADO-PX*
- SIOX-coprocessors *TORNADO-SX*

software development tools

- MPSPD port for TI XDS510 and MicroLAB Systems *MIRAGE-510D* emulators
- optional low-cost *UECM* daughter module:
 - identical to XDS510 and *MIRAGE-510D* emulators
 - emulation of the on-board TMS320C31 DSP

- optional MPSPD/JTAG active buffer pod facility for emulation of external TMS320C2xx/C3x/C4x/C5x/C54x/C6x/C8x DSPs
- TI HLL Debuggers and Code Composer IDE
- TI Floating Point DSP C/Assembler Compiler

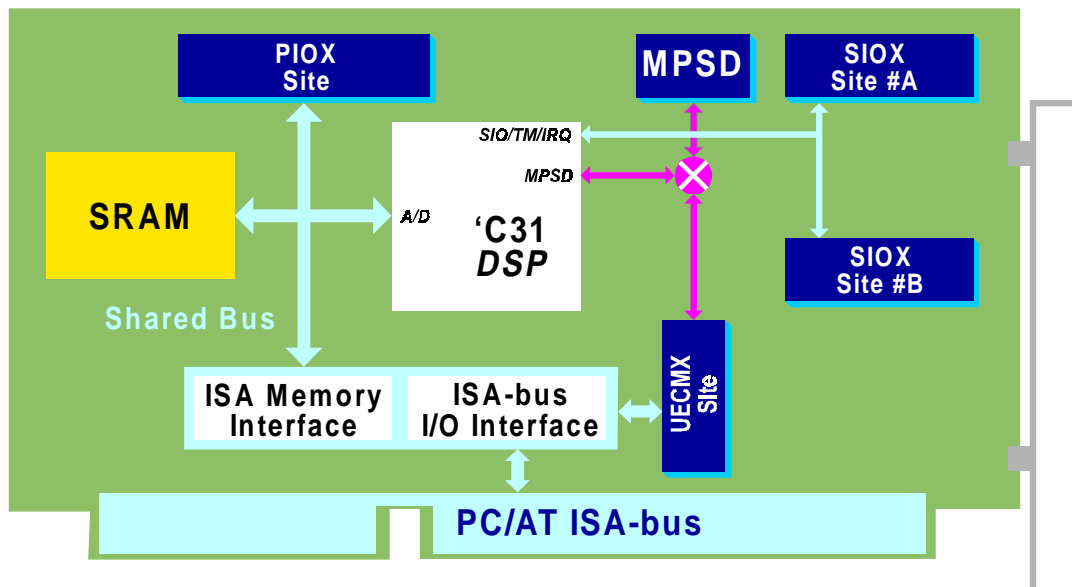
application software

- Hypersignal RIDE DSP algorithm development tools
- Virtuoso and Nucleus RTX/PLUS real-time OS tools
- DSP, math, vector and communication functions
- host control functions and utilities

applications

- real-time DSP, data acquisition and signal analysis
- vocoders and fax/modems
- acoustics and speech processing
- audio
- image processing
- instrumentation and medical devices
- industrial
- floating point DSP accelerators for PC
- TMS320 DSP systems development/diagnostics





TORNADO-31 is a high performance, flexible and low cost DSP platform for real-time floating point DSP, math computing, data acquisition, audio, communication, speech processing, instrumentation etc applications as well as for TMS320 DSP systems development and diagnostics.

An ultimate benefit of *TORNADO-31* is the on-board shared bus (SB) architecture that has been optimised for high performance on-board data processing and in-parallel high speed data transfers between the on-board SRAM/PIOX resources and host ISA bus memory interface (I/F) without consuming virtually any DSP time. Host software can easily access any SB data via ISA bus UMB mapped memory page.

When used for real-time signal acquisition, *TORNADO-31* provides serial (SIOX) and parallel (PIOX) I/O expansion I/F connectors for optional compatible daughter card modules that comprise of a variety of AD/DA, digital I/O, DSP coprocessors and intersystem link modules.

TORNADO-31 provides the on-board MPSD emulation port, which is compatible with the TI XDS510 and MicroLAB Systems *MIRAGE-510D* scan-path emulators and is used to debug the on-

board TMS320C31 software. Also, optional low cost *UECM* universal emulation control daughter card module for *TORNADO* DSP systems is available. *UECM* is identical to XDS510/*MIRAGE-510D* emulators and runs under the industry standard TI C Source Debugger and Go DSP Code Composer IDE. When installed onto *TORNADO-31* board, *UECM* automatically connects to emulation port of the on-board TMS320C31 DSP. *UECM* also delivers optional MPSD/JTAG active buffer pod facility for emulation of any external TMS320C2xx/C3x/C4x/C5x/C54x/C6x/C8x DSPs that converts *TORNADO-31* into universal development system for TMS320 DSP.

TORNADO-31 software can be developed with the TI floating point DSP C/Assembly tools. A variety of compatible real-time operating systems, DSP algorithm development tools and function libraries are available from multiple software vendors.

Flexible expandable modular construction of *TORNADO-31* delivers ready-on solutions for a wide selection of applications and is open to meet your requirements while keeping a cost of project to a minimum.

Technical Specifications

DSP

TMS320C31 floating point DSP, 32 bits, 60 MHz

on-board memory

up to 1Mx32 0ws static RAM

host ISA bus memory and I/O interfaces

ISA bus UMB mapped 32KB memory page. Eight ports in the ISA bus I/O space. Nine lines for PC IRQ.

parallel I/O expansion interface (PIOX)

One site for PIOX daughter module. Includes SB address (20) and data (32) buses, SB cycle control, TMS320C31 on-chip timers control, IRQ lines, reset, PC power lines.

serial I/O expansion interface (SIOX)

Two sites for SIOX daughter card modules. Includes the TMS320C31 on-chip serial port and timers control lines, IRQ lines, reset, PC power lines.

physical/power

1/2 PC/AT card: 185x125mm (7.3"x4.9"). Occupies one 16-bit PC/AT ISA slot. Maximum power consumption (with 128Kx32 SRAM and *UECM* installed): 5V@2.9A

warranty

Full one year warranty with software update and on-line technical support.